

**EPA comments on the Revised SLERA
Columbia Falls Aluminum Company NPL Site
Columbia Falls, Montana
Prepared for Columbia Falls Aluminum Company, LLC by Roux Associates, Inc.
Dated August 15, 2017**

Overall, the comments initially submitted and discussed are satisfactorily addressed in the revised SLERA. Below is a summary of the initial comment submitted and an additional comment regarding the revisions to the SLERA (blue text).

CFAC/Roux responses are provided in red text.

Specific Comments

Original Comment: Section 3.3.4 (Page 22) – Identified Exposure Pathways – It is suggested that a figure be created to summarize the site conceptual model for ecological exposures and how the various pathways are being evaluated. Will surface water ingestion by wildlife receptors be evaluated in future risk assessments?

Additional comment: The addition of the conceptual site model (CSM) is very helpful to gain an understanding of the pathways that are complete and for what receptors. The original comment was addressed by creating the CSM. However, upon review it is noted that exposure to subsurface soil for burrowing mammals is not considered a complete pathway. Although subsurface soil is not evaluated in the SLERA, it should be retained for evaluation in the BERA. For this reason, the CSM should be revised to include subsurface soil as a complete pathway for burrowing mammals.

It was also noted that sediment has not been included as a potentially impacted environmental media (i.e., pathway for evaluation) in the CSM. Sediment should be added as a complete exposure pathway (via direct contact/ingestion) for benthic invertebrates.

The revised CSM includes the qualitative evaluation of inhalation pathways for subsurface soil and soil vapor to terrestrial receptors that may burrow deeper than 0.5-feet below the ground surface (see Figure 3 of the Revised SLERA). A qualitative evaluation of this pathway will be included in the baseline ecological risk assessment (BERA) problem formulation presented in the BERA work plan. The qualitative evaluation will include an assessment of the potential for adverse effects associated with the inhalation of soil vapor or respirable soil dust particles within potential burrows. The evaluation will consider the chemical properties of constituents present in subsurface soils and the potential for those constituents to volatilize into soil vapor. The incidental ingestion of soil particles through foraging activities or the inhalation of non-respirable dust particles will be accounted for in soil ingestion rates used to evaluate overall ingestion pathways to terrestrial wildlife. The relative contribution of these potential pathways from subsurface soils to overall receptor exposure will also be assessed. Section 3.3.4 of the SLERA will be revised to address the above response.

Exposure pathways to bulk sediment are evaluated in the Revised SLERA and will be further evaluated in the BERA. The pathway for evaluation labeled "Sediment Pore Water" in the

revised CSM figure (Figure 3) was intended to identify exposure routes to bulk sediment and pore water. The CSM figure will be revised to reflect the pathway for evaluation as “Bulk Sediment/Pore Water”.

Original Comment: Section 4.4.2 (Page 33) – Surface Water COPEC Selection – Please clarify if total or dissolved fraction was used to compare to screening levels. Were dissolved concentrations of metals compared to Montana DEQ standards? Please clarify how hardness-dependent chemicals were evaluated. Was there an assumed hardness that was used? If so, how was the value selected? Please clarify if acute or chronic screening values are being used in the COPEC selection. It does not appear that detection limit adequacy is being evaluated as outlined in the SLERA. For example, in Table 5, mercury is not being carried through as a COPEC even though results were non-detect at a level that is more than two times the screening level. Similar to sediment, it does not appear that the lowest screening value has been selected or that all sources have been considered. To aid in the evaluation of the selected screening values, please provide a table showing the values from all sources and the selected screening value.

Additional comment: The original comment was addressed satisfactorily. It was noted that the minimum hardness used for developing screening values for chemicals with hardness-based toxicity values. While this is appropriate for this evaluation. It should be noted that the minimum hardness should be re-evaluated at the time that all four rounds of data are used for COPEC selection (i.e., it is possible the minimum value will decrease and this value should be used in subsequent screening). No action is needed at this time to revise the text.

This comment is noted, and the representative hardness values will be reevaluated for each of the four rounds of surface water sampling event to reflect potential seasonal variability in exposure to metals in surface water.

Section 4.4.3 (Page 35) – Soil COPEC Selection - Again, it does not appear that the lowest screening value has been selected or that all sources have been considered. To aid in the evaluation of the selected screening values, please provide a table showing the values from all sources and the selected screening value. Some of the soil tables do not result in a COPEC selection (e.g., Table 19). It is unclear what the potential COPECs are without doing a visual scan of the table of results and the screening values.

Additional comment: It remains unclear in Appendix B3 which values have been selected for use in screening. Appendix B1 and Appendix B2 have this selection presented (see the last two columns on the right in each of these appendices). Please add two columns to the far right in Appendix B3 to display the selected screening values and sources. Also, it appears that visually selecting the minimum value in Appendix B3 for some chemicals does not result in the value used for screening in Tables 10-21 (e.g., the minimum value for zinc in Appendix B3 is 12, while 6.62 is used for screening in the tables). Please confirm the values in Appendix B3 and Tables 10-21 are correct. Also, because it does not appear the sources have been decoded in Tables 1-21, only letters are provided (e.g., “A”), it is unclear what sources have been selected for use in screening data without referring to the appropriate appendix. Can a key be provided for each table? Please also clarify what is meant by “background”. It is unclear what this means in the screening process as it is not appropriate to consider background concentrations during COPEC selection.

It also may be more useful to segregate the screening for plants/soil invertebrates and birds/mammals recognizing that baseline risk calculations for these receptor groups is performed in a different manner. This is just a suggestion, it is not critical to separate the screening in this way at this time.

Appendix B3 presents the Minimum ESV and Minimum ESV source columns on pages 17 through 22 of Appendix B in the last two columns, similar to Appendix B1 and B2. The numerous screening levels do not facilitate thirteen screening level columns and minimum ESV columns to fit on the first few pages of the Appendix B3 PDF. The minimum value for zinc in Appendix B3 is 6.62, as defined by EPA Region 5 Ecological Screening Levels (Source F). This is presented on page 17 of 22 of Appendix B. As noted above, all screening value columns did not fit on one page. The appendices will be reformatted so that all columns can fit on one page.

The minimum ESV sources are defined for sediment ESV sources, surface water ESV sources, and soil ESV sources on page 72 of the PDF as "Notes Utilized Throughout Tables and Appendices". The notes table is a key for all references and definitions in the Tables and Appendices. This comment is noted and the Notes table will be added prior to the Appendices as well.

In the initial draft of the SLERA, calcium, magnesium, potassium, and sodium were screened from further evaluation since they are considered essential nutrients. MDEQ commented that while they are essential nutrients, the concentrations should be compared to background concentrations to evaluate if these constituents are present at concentrations greatly exceeding background, they were not being prematurely dismissed from evaluation. Background in the tables is referring to the maximum concentration of the essential nutrient measured in the Background Area. In any of the exposure areas where the essential nutrient concentration exceeded the background concentration, the essential nutrient was retained for further evaluation.

The EPA comment regarding segregation of the screening for plants/soil invertebrates and birds/mammals is noted and will be considered during preparation of the problem formulation in the BERA Work Plan, which will define separate assessment and measurement endpoints for each trophic group. At this time, for finalization of the SLERA, the screening will not be separated.